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ABSTRACT

This paper is an extended example of transactional evaluation; extended to show not only that the narrow purpose of a particular evaluation can be a means to further ends, but also to document the developmental character of process in a dynamic setting. The primary purpose of the study was to determine what preceptors or advisory teachers emphasize in their activities as they work with the senior medical student and his ambulatory patient. The basic study was planned in 1961 and data were gathered during 1962. The data analysis, which involved the creation of rationales for organizing findings and the planning of innovations, continued into 1964. The resulting changes in the particular instructional unit were still in effect in December of 1971, and information useful in further evaluation has been gathered systematically during the intervening years. (Author/HS)

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TRANSACTIONAL EVALUATION IN A MEDICAL SCHOOL SETTING

By

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It was my privilege to be a continuing consultant in evaluation to the Division of Research in Medical Education at Case-Western Reserve University during that period. This report is based on my notes and recollections from that period as well as on the publications (1,2,3,4), notes, and recall of the five investigators who studied instruction of seniors on the outpatient, clinical medical service known as Group Clinic. (5) They shall be referred to as the committee. This brief account provides no opportunity to discuss two other studies of clinical instruction which were proceeding simultaneously and which, consequently, were part of the dynamics of the environment in which the Group Clinic study was accomplished.

Group Clinic

In Group Clinic the senior medical student is assigned responsibility for making a diagnosis and developing a tentative plan for the treatment of a patient who has come to this out-patient clinic. The student is guided and advised by physicians known as preceptors. Some preceptors are physicians in private practice who are "paid" for their work in Group Clinic. The payment is use of a number of beds for their own patients in the University Hospitals. Perhaps some of the transactional dynamics will readily suggest themselves, for these preceptors have all the characteristics of any group of successful, highly trained people: pride, confidence, vanity, skill, a touch of egotism, perhaps some impatience.

The research problem was to determine the operational objectives of preceptors on Group Clinic. As Adams phrased it: "The primary purpose of the study was to learn more about what teachers emphasize in their activities as they work with the senior medical student and his ambulatory patient in the Group Clinic." (3)

Method

In an effort to come to grips with the general problem of concern, i.e., diffuseness of goals and instruction, a variety of research and study techniques were considered. Eventually the committee decided to undertake a naturalistic observation.

> We had had an interest in the naturalistic observational method for some time. For one thing, from my side it fits the style of work of the psychoanalyst. . . . Dr. Betty Mawardi, who is the social psychologist in our study, has used the methodology in the study of problem solving of an inventive industrial group. It was used also by Dr. Milton Horowitz in a study of twenty students of the new curriculum who were followed through four years. (3)

The problems of explaining the appearance of new observers on Group Clinic and of rationalizing note taking and the interviewing of preceptors loomed large; but they were met in a simple way. The committee decided to announce boldly and frankly what their concern was and what their plans were. Apparently this decision caused very little feather ruffling, although events in 1964, mentioned later in this paper, showed clearly that some preceptors must have been distressed by the study, whether or not they were directly involved.

> The four physicians acting in rotation observed nineteen individual teaching performances which were selected to minimize bias. The unit of performance observed was the preceptoral session concerned with the presentation and discussion of a new ambulatory patient. The non-participant observer kept a sequential record of the verbal and non-verbal behavior of the student and instructor, including his own comments and reactions. At the conclusion of the teaching exercise, the observer questioned the instructor about his objectives and about the student's strengths and weaknesses. (1)

Data analysis

The pilot study, consisting of six observations, was completed in January, 1962. The other thirteen observations were made in September and October of the same

calendar year. But the tough work had not yet begun, for it was only at that point that data analysis was attempted. After the data from the first half-dozen observations had been summarized by the observers, the entire committee reviewed the work. They decided that the individual summaries were "too biased, incomplete, and not comparable to each other." (3) They then decided to have the observer read his notes to the group. Whenever a member of the committee thought he could make an appropriate judgment or define a specific performance, he would interrupt so that a record could be made of this. During the months in which this process was being enacted, it was said: "We are becoming more sophisticated at recognizing not only specific items of performance, but in considering overall patterns, small patterns and bigger ones." (2) This educative impact of evaluation cropped up in yet another way, as the following quotation suggests.

> I thought it was also an interesting confirmation of the effect of set on perception that we saw so much in the role of observers, which we had not noticed in several years work as teachers and consultants. It was as if we had entered a different world. (2)

Creating analytical structures

The decision to undertake a study was made in 1961, the observations were made during 1962, and analysis was under way in 1963. Yet in 1964 the following statement about the analysis of data was made: "The methods have evolved with the study and are still undergoing change." (3)

They had found it necessary to turn from the work of the individual scholar, whose summaries of protocols we have noted were unsatisfactory, to the collective intelligence, perception and judgment of the committee, in interactive, working sessions. At that point they began to develop, test and improve categories for the items of performance noted and the value judgments imposed on the data. They used two major headings for groups of categories: I Emphases Relevant to the Patient, and II Emphases Relevant to the Student. The categories are shown in the Appendix, in Figures 1 and 2 and Table 2 from the 1964 article. They then proceeded to develop "profiles of individual teaching performance" based on the groups of categories. The measuring unit they defined was called "emphasis" and the scale they selected ranged from (-2) through (0) to (+2). (3) They also developed an "over-all individual performance score" and a "composite profile", the latter being a graphic representation of the performance of all instructors whose teaching was observed.

The consequences

The original question had been "what do the teachers emphasize?"; the answer was "lots of things." The problem was that this answer covered: 1) instruction which perseverated on a minor procedure; 2) instruction which seemed invective, to the point of being non-instruction; 3) instruction about preceptors' "hobby-horses" which, or

occasion, were not relevant to the patient's condition; as well as 4) a variety of kinds of relevant, appropriate, sound teaching techniques focused on significant content. In an attempt to reduce this range of emphases steps were taken 1) to involve some preceptors in a study group, and 2) to improve the orientation provided for new preceptors. Both steps are mentioned again later.

Discussion during analysis of the data was one of the most productive episodes of the study. Not only did the committee find an answer to the original question; as we have seen, they also invented new concepts to guide the observation of instruction and created instruments to help others who wished to think about clinical instruction. And beyond that, they revealed for themselves a powerful instructional mechanism to be used with preceptors.

This latter consequence began to take form at a critical point in the investigation, while the committee was analyzing their notes from the observations. The process of analysis was an extremely difficult task and a wide range of interpolated comments about teaching performances were generated during the discussions. The critical point was reached when one member of the committee said rather heatedly: "Why you judgmental 'bleeps'! Who do you think you are, making these judgments about these men!" The entire study stood balanced on the edge of a precipice, and every member of the committee apparently knew that this

was the case. Rather than chucking the whole study they worked through a response to the criticism. Their operational decision was to sort judgmental type statements into two classes: 1) those which were descriptive and/or verifiable, and 2) those value-laden, emotional statements which seemed to stem from the observer's value-system. This decision not only enabled the committee to proceed, it opened the way for insight into their own teaching behavior; this, in turn, suggested an evening study group for preceptors. Further, this episode formed the base from which the committee met a significant challenge later. This latter challenge is reported next from a transcription of the recording of a meeting and from a letter written by the preceptor who was protagonist.

The challenge arose in a letter to the Director of Group Clinic following the first evening meeting on evaluation of instruction in Group Clinic. (This is the first of two steps mentioned earlier.) This initial study session was attended by several preceptors and the committee who had completed the study. The preceptor wrote, in part:

> I came away from the meeting wondering if the group were not simply judging a teaching performance in the light of their own preconceived ideas? Is this necessarily a valid evaluation? Perhaps deviations from our accepted norms just might be good. How under the present study set-up do we have the presumption to judge?

> As a case in point, the instructor in the case reviewed on last Wednesday was rather severely criticized by some as being too impatient - too hard on the student. Perhaps he was and the student was hurt - but again, perhaps the student was helped, corrected, and stimulated. I honestly don't know and I doubt if others in the group do. We take the information second hand not knowing the follow-up or the student's reaction, then at a distance, and with only part of the facts we pass pontifical judgment. Somehow this does not seem to be quite a scientific approach.

This letter could hardly be ignored, so it was brought before the next study session. It was the first item of business, for it seemed that no progress could be made in helping preceptors study and understand their instructional patterns if this challenge were left unexplored. The committee's own experience with this problem now became invaluable. It was the protagonist's belief that the preceptors were being judged; that the teaching performance was being judged; that, perhaps, the student was being judged. The Director of Group Clinic responded:

> It's neither evaluation of students or of teachers. The student and what goes on with him is a background. And we aren't evaluating teachers. We're looking at kinds of teaching performances. Now, you say, why do this? What purpose could this possibly serve? We think that it enables one to become a better observer by just being aware of what goes on in teaching; becoming more cognizant of what one is actually doing as he enters a teaching situation.

The preceptor suggested that in order to evaluate teaching one should know the results of the teaching performance. There was agreement on this point. Another point the preceptor turned to time and again was that this study group

could not know what the student needed. A committee member responded:

> You picked one of the most important points, right here. You said, let's put it in terms of the student and whether or not this is what the student needed. You're assuming that people do this. I think that maybe as we go through some of this, you will begin to wonder on what basis were the objectives that people use selected.

Other members of the committee supported this response. They drew upon their experiences in interviewing preceptors after they had instructed medical students and upon their observations of the instruction. One said: "At the end I came up with the idea that a good many teaching performances are not geared according to the needs of either the student or the patient." A few seconds later the protagonist said: "Very good. I would be willing to continue." And what was perhaps the most important consequence of the study was established: preceptors were willing to examine their own, private goals and models of instruction in light of some public goals and procedures.

The particulars flowing from this consequence were manifold and have persisted in the orientation for new preceptors, the second step mentioned previously. Let me list some which were in evidence when last I visited there in December 1971.

1) The following teaching styles are introduced with examples during one of a series of four meetings held with

each new set of preceptors: a) Global, b) Do Nothing, c) Interruptive-Disruptive, d) Competitive - Talk Over, e) Hobby Horse, f) Major Problem Untouched, g) Psychiatric Avoided, h) Disease Entities, i) Authoritarian, j) Permissive, k) "Like in Practice", l) Individualized - Selective in terms of Needs of Patient and Student.

2) Suggestions like the following are made: a) Focus on the major problem and serve the patient; b) You can't do everything at each session with the student; c) Don't teach pilonephritus because the patient has a back pain.

3) A short list of special objectives for Group Clinic are presented to the preceptors.

4) Preceptors are encouraged to observe the student while he is with the patient.

5) Portions of two training sessions for preceptors are devoted to discussions of problems students are having.

6) Preceptors are encouraged to keep cumulative evaluation records to enable particular and specific comments to be made about students.

7) Categories from the study are used in two of the training sessions.

8) Sometimes the Director reads from an observation made during the study. It is a classic case of a disgusted preceptor not helping a failing student.

Some preceptors, it is reported, come to this series of meetings each year even though the series is intended

only for new preceptors. The repeaters report that they continue to learn about both evaluation and instruction. Some even bring pedagogic problems to the Director of Group Clinic.

A pair of evaluation reports on students are presented in the Appendix. One report is from January 1961, and the other from November 1971. Significant improvement in evaluation is evident. The Director of Group Clinic said: "These are from the top of the pile," as he handed them to me.

Conclusion

This long series of consequences demonstrate that evaluation is, sometimes, transactional. A simple attempt at evaluation was successful; but it was also transformed by the dynamics of the situation. It became a developmental process serving additional ends.

Notes and references:

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3. Adams, W. R. et al. A naturalistic study of teaching in a clinical clerkship. J. Med. Educ. 39: 164-173, 1964.

4. Adams, W. R. et al., Participation of clinicians in a study of teaching. J. Med. Educ. 42: 274, 1967.

5. William R. Adams, M.D., department of psychiatry, Thomas Hale Ham, M.D., department of medicine and Director, Division of Research in Medical Education, Betty H. Hawardi, Ph.D., department of psychology, Henry A. Scali, M.D., department of psychiatry, and Russell Weismann, Jr., M.D., department of medicine and Director of Group Clinic, University Hospitals, Cleveland, Ohio.

APPENDIX

Student Evaluation January 1961

Instructor I "a very quiet man - must be drawn out to make him participate. General knowledge is good. Pathophysiology well demonstrated. In one patient with anemia he did not follow up work without being advised it was essential. Writes complete records which are concise, well organized. Able to establish reasonable plans for patients. With one patient he did not include pertinent negatives in the physical examination.

Instructor II "above average. Student gave a good presentation to a visiting professor. Was well aware of the psychiatric aspects of this case although medical aspects were the important part. Unassuming but a good man. B+

Instructor III "not enough contact with this student to have my evaluation mean anything.

Instructor IV "no adequate observations.

Instructor V "no ball of fire on first acquaintance but turns out to be a very steady reliable worker, slow but thorough. He is rather shy and reserved but with a little encouragement proves to have an adequate fund of factual material which he applies well in the analysis of clinical problems as they arrive. To date has shown not too much initiative but I am satisfied that the pressure of more responsibility will bring this out."

Student Evaluation November 1971

Instructor I "initially 10-4-71, watched history and physical examination; adequate but patronizing. He was upset when I raised the question but showed conscious improvement through the session. Re-checked history and physical on 11-15-71 at which time he did a good job with multiple problems - called in children of patient with sickle cell trait for sickle cell preps on his own initiative.

On 11-5-71 his poorest performance was Mrs. C. This was because he became involved in the patient's emotional problems and was very naive and permitted himself to be drawn in as a participant rather than an active observer. He rejected my help in this situation. Eventually we cleared the air of problems and he discussed the case with a psychiatrist - the situation was concluded unsatisfactorily because the patient left the city. This patient also had a positive Pap preparation.

Over all satisfactory performance. Discussed his slowness in history and physical examination early and he showed marked improvement by the end of the session. Was tough on his preceptor! All his patients showed up all of the time perhaps this explains my feelings that he tended to become overwhelmed easily by the number of patients and problems. This will improve with experience.

This may also explain his minimal initiative and effort to supplement his general fund of knowledge which was adequate to get by but not impressive - a very honest student.

Recommendations: For further performance - to do more reading, to review basic science and current literature. Expect improvement with experience and confidence. For graduate training good rapport with patients will make a good medical resident as his slowness improves.

Instructor II "the one major criticism of Mr. X is his reluctance to speed up his history - physical examination and presentation. It was occasionally he would slip back to his former "training".

His work-up and management of patients was quite adequate and his follow-up and rapport was better than average. His command of general knowledge is somewhat better than average and his effort is good. He should perform quite well as an intern.

Recommendations: Can use closer supervision in the area of a concise work-up and presentation.

Student Evaluation November 1971 (cont.)

Instructor III "working with a patient with an old calcified nodule at the right hilum he followed up very well - got multiple expert opinions and summarized the material very well.

Mr. X was very slow at the beginning of the clerkship but very thorough. However, he did speed up very well by the end of the eight weeks. He responds well to suggestions and should make a very good clinician.

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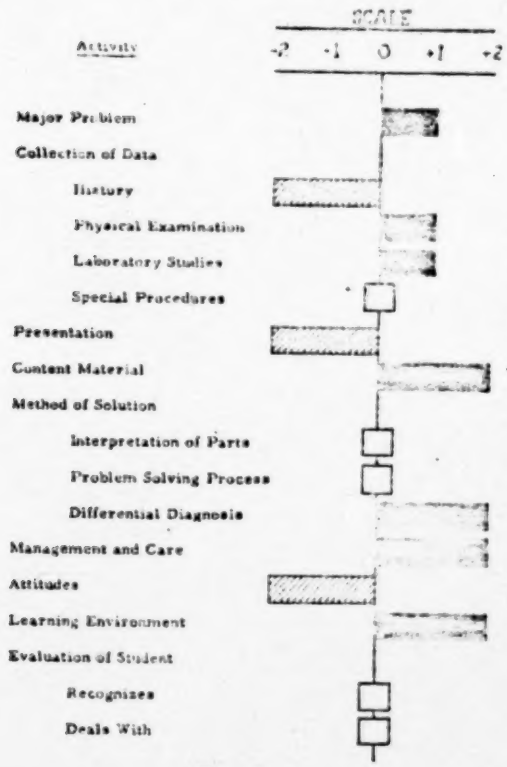

FIGURE 1
Profile of activities of an instructor.

Instructor A received a total score of (+5) on the profile shown in Figure 1. This included (+2) on content, differential diagnosis, management and care, and learning environment. There was a zero rating on special procedures, interpretation of parts and problem solving process. He received (−2) on history, presentation, and attitudes. (+1) on physical examination, recognition of the major problem, and laboratory studies. The summaries conveyed a similar impression. The instructor did not correct a sketchy present illness. He asked for a summary of data but did not correct the poor summary he was given. He did a careful physical examination but missed important clues in the history. He did not appear to recognize the patient's concern about a chest film and in other instances seemed unaware or unable to deal with the patient's feelings. He emphasized differential diagnosis extensively; one observer wanted to give this a (+4) rating. Content was emphasized. He emphasized management in general but less specifically related to this patient. He implied that extensive diagnostic studies were not indicated because the patient was in her sixties. After the session, he recognized that the student was weak in history taking and physical examination and that he had not worked to correct this. His stated objective was to emphasize differential diagnosis.

THE COMPOSITE PROFILE AND EMPHASES

The bar graph (Figure 2) is given here to illustrate the composite scores. Table 2 represents the ratings of effectiveness of emphasis arranged in descending order in the left hand column and the total activity score in the right hand colugan. The bar graph is also useful insofar as the score of zeros is concerned. The largest number of performances which devoted essentially no activity to an emphasis or omitted an emphasis are found with laboratory studies (9), special pro-

TABLE 2
COMPOSITE PROFILE SCORES

	Effectiveness*	Category	Total Activity†
I	+20	Physical examination	22
	+15	Interpretation of parts	17
	+14	Differential diagnosis	18
	+13	Problem solving process	15
	+10	Content	18
	+ 9	Laboratory studies	11
	+ 6	Special procedures	6
	+ 4	The major problem	24
	+ 4	History	24
	+ 1	Management and care	23
	0	Attitudes	26
	− 6	Presentation	26
II	+ 6	Learning environment evaluation of the student	20
	+15	Recognizing strengths and needs of the student	21
	0	Dealing with strengths and needs of the student	14

* The algebraic sum of scores listed in descending order.
† Sum of all scores without regard to sign.

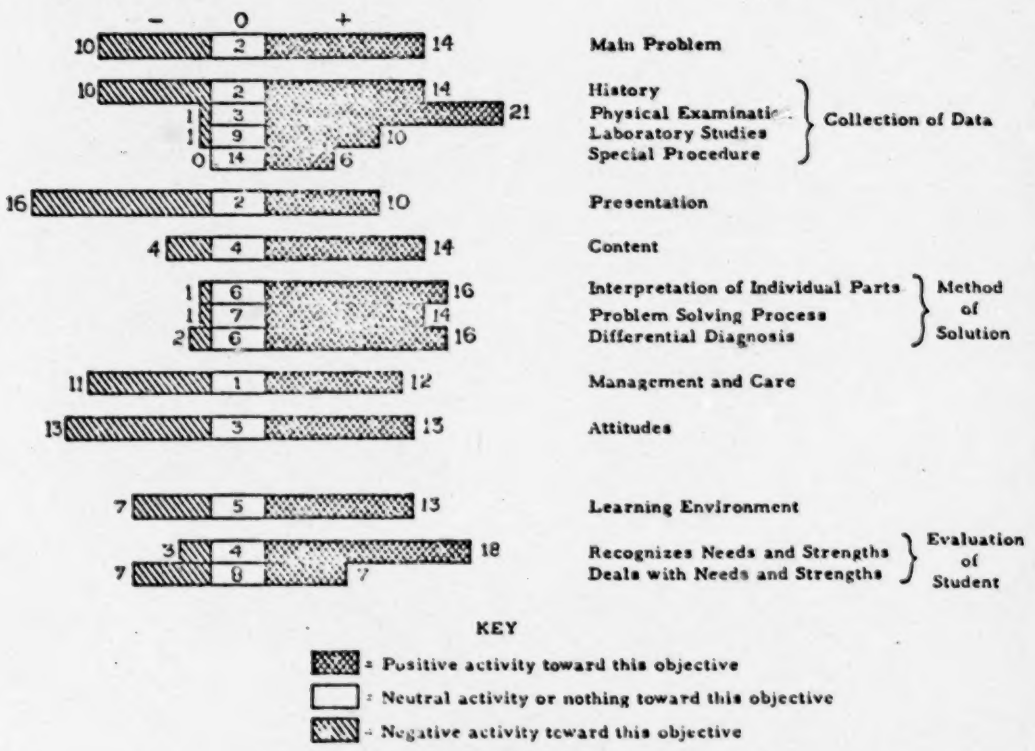

FIGURE 2
The composite of individual scores of effectiveness and activity.